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# IMPLEMENTATION PLAN REVIEW FOR NEW YORK AS REQUIRED BY THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT

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# IMPLEMENTATION PLAN REVIEW

# FOR

# NEW YORK

# AS REQUIRED

# BY

# THE ENERGY SUPPLY

# AND

# ENVIRONMENTAL COORDINATION ACT

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16. ABSTRACT

Section IV of the Energy Supply and Environmental Coordination Act of 1974, (ESECA) requires EPA to review each State Implementation Plan (SIP) to determine if revisions can be made to control regulations for stationary fuel combustion sources without interferring with the attainment and maintenance of the national ambient air quality standards. This document, which is also required by Section IV of ESECA, is EPA's report to the State indicating where regulations might be revised.

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# NEW YORK

# AS REQUIRED BY THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT

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April 1975

NEW YORK

ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT
(SECTION IV - STATE IMPLEMENTATION PLAN REVIEW)

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# 1.0 EXECUTIVE SUMMARY

The enclosed report is the U.S. Environmental Protection Agency's (EPA) response to Section IV of the Energy Supply and Environmental Coordination Act of 1974 (ESECA). Section IV requires EPA to review each State Implementation Plan (SIP) to determine if revisions can be made to control regulations for stationary fuel combustion sources without interfering with the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS). In addition to requiring that EPA report to the State on whether control regulations might be revised, ESECA provides that EPA must approve or disapprove any revised regulations relating to fuel burning stationary sources within three months after they are submitted to EPA by the States. The States may, as in the Clean Air Act of 1970, initiate State Implementation Plan revisions; ESECA does not, however, require States to change any existing plan.

Congress has intended that this report provide the State with information on excessively restrictive control regulations. The intent of ESECA is that SIP's, wherever possible, be revised in the interest of conserving low sulfur fuels or converting sources which burn oil or natural gas to coal. EPA's objective in carrying out the SIP reviews, therefore, has been to try to establish if emissions from combustion sources may be increased. Where an indication can be found that emissions from certain fuel burning sources can be increased and still attain and maintain NAAQS, it may be plausible that fuel resource allocations can be altered for "clean fuel savings" in a manner consistent with both environmental and national energy needs.

In many respects, the ESECA SIP reviews parallel EPA's policy on clean fuels. The Clean Fuels Policy has consisted of reviewing implementation plans with regards to saving low sulfur fuels and, where the primary sulfur dioxide air quality standards were not exceeded, to encourage States to either defer compliance regulations or to revise the $SO_2$ emission regulations. The States have also been asked to discourage large scale shifts from coal to oil where this could be done without jeopardizing the attainment and maintenance of the NAAQS.

To date, EPA's fuels policy has addressed only those States with the largest clean fuels saving potential. Several of these States have or are currently in the process of revising $SO_2$ regulations. These States are generally in the Eastern half of the United States. ESECA, however, extends the analysis of potentially over-restrictive regulations to all 55 States and territories. In addition, the current reviews address the attainment and maintenance of all the National Ambient Air Quality Standards.

There are, in general, three predominant reasons for the existence of overly restrictive emission limitations within the State Implementation Plans. These are (1) The use of the example region approach in developing State-wide air quality control strategies; (2) the existence of State Air Quality Standatds which are more stringent than NAAQS; and (3) the "hot spots" in only part of an Air Quality Control Region (AQCR) which have been used as the basis for controlling the entire region. Since each of these situations affect many State plans and in some instances conflict with current national energy concerns, a review of the State Implementation Plans is a logical follow-up to EPA's initial appraisal of the SIP's conducted in 1972. At that time SIP's were approved by EPA if they demonstrated the attainment of NAAQS or more stringent state air quality standards. Also, at that time an acceptable method for formulating control strategies was the use of an example region for demonstrating the attainment of the standards.

The example region concept permitted a State to identify the most polluted air quality control region (AQCR) and adopt control regulations which would be adequate to attain the NAAQS in that region. In using an example region, it was assumed that NAAQS would be attained in the other AQCR's of the State if the control regulations were applied to similar sources. The problem with the use of an example region is that it can result in excessive controls, especially in the utilization of clean fuels, for areas of the State where sources would not otherwise contribute to NAAQS violations. For instance, a control strategy based on a particular region or source can result in a regulation requiring 1 percent sulfur oil to be burned state-wide where the use of 3 percent sulfur coal would be adequate to attain NAAQS in some locations.

EPA anticipates that a number of States will use the review findings to assist them in making the decision whether or not to revise portions of their State Implementation Plans. However, it is most important for those States which desire to submit a revised plan to recognize the review's limitations. The findings of this report are by no means conclusive and are neither intended nor adequate to be the sole basis for SIP revisions; they do, however, represent EPA's best judgment and effort in complying with the ESECA requirements. The time and resources which EPA has had to prepare the reports has not permitted the consideration of growth, economics, and control strategy tradeoffs. Also, there have been only limited dispersion modeling data available by which to address individual point source emissions. Where the modeling data for specific sources were found, however, they were used in the analysis.

The data upon which the reports' findings are based are the most currently available to the Federal Government. However, EPA believes that the States possess the best information for developing revised plans. The States have the most up-to-date air quality and emissions data, a better feel for growth, and the fullest understanding for the complex problems facing them in the attainment and maintenance of air quality. Therefore, those States desiring to revise a plan are encouraged to verify and, in many instances, expand the modeling and monitoring data supporting EPA's findings. In developing a suitable plan, it is suggested that States select control strategies which place emissions for fuel combustion sources into perspective with all sources of emissions such as smelters or other industrial processes. States are encouraged to consider the overall impact which the potential relaxation of overly restrictive emissions regulations for combustion sources might have on their future control programs. This may include air quality maintenance, prevention of significant deterioration, increased TSP, $NO_x$, and HC emissions which occur in fuel switching, and other potential air pollution situations such as sulfates.

Although the enclosed analysis has attempted to address the attainment of all the NAAQS, most of the review has focused on total suspended particulate matter (TSP) and sulfur dioxide ($SO_2$) emissions. This is because stationary fuel combustion sources constitute the greatest source of $SO_2$ emissions and are a major source of TSP emissions.

Part of each State's review was organized to provide an analysis of the $SO_2$ and TSP emission tolerance within each of the various AQCR's. The regional emission tolerance estimate is, in many cases, EPA's only measure of the "over-cleaning" accomplished by a SIP. The tolerance assessments have been combined in Section 2 and Appendix B with other regional air quality "indicators" in an attempt to provide an evaluation of a region's candidacy for changing emission limitation regulations. In conjunction with the regional analysis, a summary of the State's fuel combustion sources (power plants, industrial sources, and area sources) has been carried out in Appendices C, D, and E.

The State Implementation Plan for the State of New York has been reviewed for the most prevalent causes of over-restrictive fuel combustion emission limiting regulations. The major findings of the review are:

FOR TOTAL SUSPENDED PARTICULATES, THERE ARE NO AQCR'S WHICH INDICATE A GOOD OR MARGINAL POTENTIAL FOR REVISING FUEL COMBUSTION SOURCE EMISSIONS LIMITING REGULATIONS.

FOR $SO_2$, THERE ARE TWO AQCR'S WHICH INDICATE A GOOD POTENTIAL FOR REVISING FUEL COMBUSTION SOURCE EMISSION LIMITING REGULATIONS. THESE ARE CENTRAL NEW YORK AND SOUTHERN TIER EAST. TWO AQCR'S INDICATE A MARGINAL POTENTIAL FOR REVISION OF $SO_2$ EMISSION LIMITING REGULATIONS. THEY ARE GENESEE-FINGER LAKES AND SOUTHERN TIER WEST AQCR'S.

The supportive findings of the SIP review are as follows:

In all regions which indicated a poor potential for regulation revision, the predominant reason was violation of the NAAQS in 1973. In the case of $SO_2$, air quality levels were below standards in several AQCR's, indicating some tolerance for an increase in emissions. However, emissions from fuel combustion sources contribute a large percentage of the total emissions in these regions, and an increase in emissions may have an adverse impact on air quality.

New York data for the National Emissions Data System (NEDS) are in the process of being compiled. Therefore, the findings of this review as regarding emissions of particulates and $SO_2$ are based entirely on the emission inventory data contained in the New York SIP. These data reflect 1970 conditions.

## 2.0 STATE IMPLEMENTATION PLAN REVIEW

### 2.1 SUMMARY

A revision of fuel combustion source emissions regulations will depend on many factors. For example:

- Does the State have air quality standards which are more stringent than NAAQS?
- Does the State have emission limitation regulations for control of (1) power plants, (2) industrial sources, (3) area sources?
- Did the State use an example region approach for demonstrating the attainment of NAAQS or more stringent State standards?
- Has the State not initiated action to modify combustion source emission regulations for fuel savings; i.e., under the Clean Fuels Policy?
- Are there no proposed Air Quality Maintenance Areas?
- Are there indications of a sufficient number of monitoring sites within a region?
- Is there an expected 1975 attainment date for NAAQS?
- Based on (1973) air quality data, are there no reported violations of NAAQS?
- Based on (1973) air quality data, are there indications of a tolerance for increasing emissions?
- Are the total emissions from stationary fuel combustion sources proportionally lower than those of other sources?
- Is there a significant clean fuels savings potential in the region?
- Do modeling results for specific fuel combustion sources show a potential for a regulation revision?

The following portion of this report is directed at answering these questions. An AQCR's potential for revising regulations increases when there are affirmative responses to the above.

The initial part of the SIP review report, Section 2 and Appendix A, was organized to provide the background and current situation information for the State Implementation Plan. Section 3 and the remaining Appendices

provide an AQCR analysis which helps establish the overall potential for revising regulations. Emission tolerance estimates have been combined in Appendix B with other regional air quality "indicators" in an attempt to provide an evaluation of a region's candidacy for revising emission limiting regulations. In conjunction with the regional analysis, a characterization of the State's fuel combustion sources (power plants, other point sources, and area sources) has been carried out in Appendices C, D, and E.

Based on an overall evaluation of EPA's current information, AQCR's have been classified as good, marginal, or poor candidates for regulation revisions. Table 2-1 summarizes the State Implementation Plan Review. The remaining portion of the report supports this summary with explanations.

## 2.2 AIR QUALITY SETTING - - STATE OF NEW YORK

The state of New York is divided into eight AQCR's. These are AQCR 158, Central New York Intrastate; AQCR 159, Champlain Valley Interstate (Vermont); AQCR 160, Genesee-Finger Lakes Intrastate; AQCR 161, Hudson Valley Intrastate; AQCR 43, New Jersey - New York - Connecticut Interstate; AQCR 196, Niagara Frontier Intrastate; AQCR 163, Southern Tier East Intrastate; and AQCR 164, Southern Tier West Intrastate. The New York portion of the Champlain Valley AQCR is the same region as that referred to in the New York SIP as the Northern AQCR, while the New York portion of the New Jersey - New York - Connecticut AQCR is the same as the Metropolitan AQCR. Figure 2-1 shows the geographical boundaries of, and the counties included in, each region.

Tables A-1, A-2, and A-3 are a summary description of the State air quality setting. Table A-1 shows each region's priority classifications for TSP, $SO_2$, and $NO_2$; population of the region; and counties which have been proposed as part of an Air Quality Maintenance Area (AQMA). Table A-2 lists the projected date by which each region will attain the applicable air quality standards. A summary of the Federal and State Air Quality Standards follows in Table A-3.

TABLE 2-1

STATE IMPLEMENTATION PLAN REVIEW
(SUMMARY)

| "Indicators" | New York | | Central New York AQCR 158 | | Champlain Valley AQCR 159 | | Genesee-Finger Lakes AQCR 160 | | Hudson Valley AQCR 161 | | New Jersey, New York, Connecticut AQCR 43 | | Niagara Frontier AQCR 162 | | Southern Tier East AQCR 163 | | Southern Tier West AQCR 164 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ | TSP | $SO_2$ |
| • Does the State have air quality standards which are more stringent than NAAQS? | Yes | Yes | | | | | | | | | | | | | | | | |
| • Does the State have emission limiting regulations for control of: | | | | | | | | | | | | | | | | | | |
| 1. Power plants | Yes | Yes | | | | | | | | | | | | | | | | |
| 2. Industrial sources | Yes | Yes | | | | | | | | | | | | | | | | |
| 3. Area sources | Yes | Yes | | | | | | | | | | | | | | | | |
| • Did the State use an example region approach for demonstrating the attainment of NAAQS or more stringent State standards? | No | No | | | | | | | | | | | | | | | | |
| • Has the State not initiated action to modify combustion source emission regulations for fuel savings; i.e., under the Clean Fuels Policy? | Yes | No | | | | | | | | | | | | | | | | |
| • Are there no proposed Air Quality Maintenance Areas? | | | No | Yes | Yes | Yes | No | Yes | No | No | No | No | No | No | No | Yes | No | Yes |
| • Are there indications of a sufficient number of monitoring sites within a region? | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| • Is there an expected 1975 attainment date for NAAQS? | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | No | No | Yes | Yes | Yes | Yes |
| • Based on (1973) Air Quality Data, are there no reported violations of NAAQS? | | | No | Yes | No | Yes | No | Yes | No | Yes | No | No | No | No | No | Yes | No | Yes |
| • Based on (1973) Air Quality Data, are there indications of a tolerance for increasing emissions? | | | No | Yes | No | Yes | No | Yes | No | Yes | No | No | No | No | No | Yes | No | Yes |
| • Are the total emissions from stationary fuel combustion sources proportionally lower than those of other sources? | | | No | No | Yes | No | Yes | No | Yes | No | No | No | Yes | No | No | No | No | No |
| • Do modeling results for fuel combustion sources show a potential for a regulation revision?[a] | | | N.A. | Yes | N.A. | N.A. | N.A. | Yes | No | No | Yes | Yes | N.A. | Yes | N.A. | No | N.A. | No |
| • Must emission limiting regulations be revised to accommodate significant fuel switching?[b] | | | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk | Unk |
| • Based on the above indicators, what is the potential for revising fuel combustion source emission limiting regulations? | | | Poor | Good | Poor | Poor[c] | Poor | Marg. | Poor | Poor | Poor | Poor | Poor | Poor | Poor | Good | Poor | Marg. |
| • Is there a significant Clean Fuels Saving potential in the region? | | | Unk | | Unk | | Unk | | No | | No | | No | | Unk | | Unk | |

[a] Modeling results available only for power plants. In all regions except 161 and 43, only $SO_2$ was modeled. N.A. - no modeling results available.

[b] No data available on individual fuel combustion sources. Therefore, answers to this question are unknown.

[c] Air quality violation occurred in Vermont in 1974.

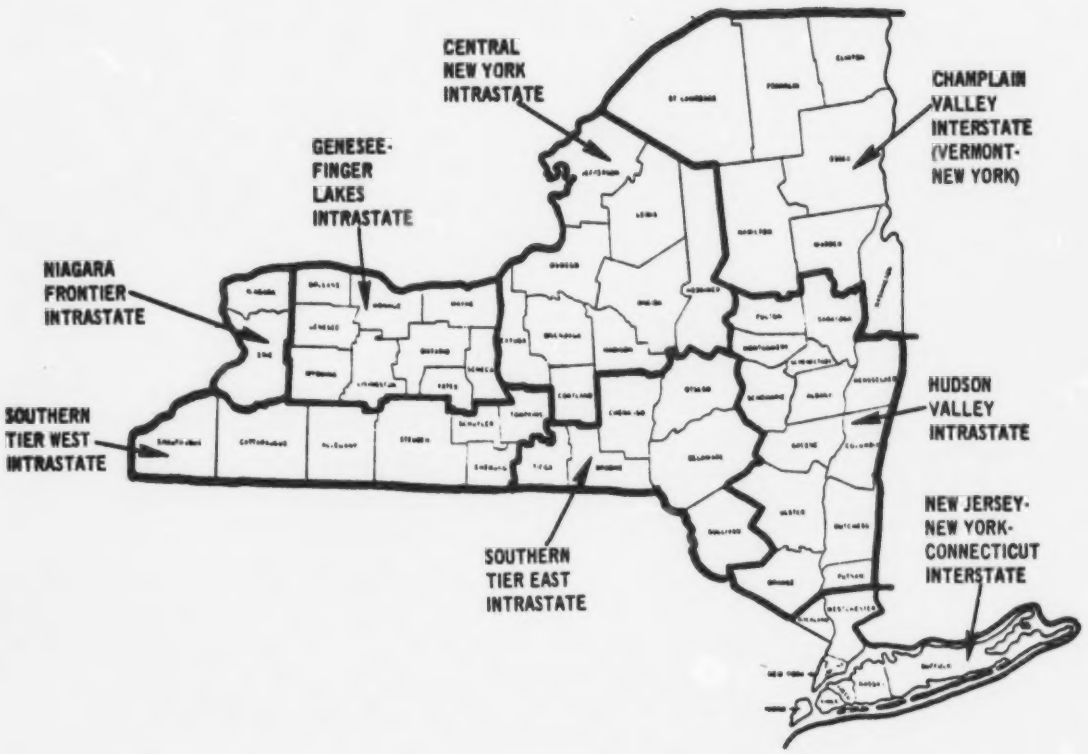



Figure 2-1 New York Air Quality Control Regions

A summary of the New York air quality status is presented in Tables A-4 and A-5. Data included in these tables were extracted from the Storage and Retrieval of Aerometric Data (SAROAD) system of the National Air Data Bank. The most current air quality data available are for 1973.

Table A-6 gives a brief summary of New York fuel combustion sources, followed by Tables A-7 and A-8 which display similar data, but in a much more detailed form. EPA and the State of New York are presently in the process of compiling an accurate emission inventory for submission to the National Emissions Data System (NEDS). Because a certain amount of emission data were required for this review, and since NEDS data were not available, the emission inventory from the SIP for New York was used. These data are representative of 1970 conditions, and no attempt was made to project them to a more current date. This point should be kept in mind when reviewing data in Tables A-6, A-7, and A-8; B-1 and B-2; D-1 and D-2; and E-1 and E-2.

Summaries of the New York regulations for the control of particulate and $SO_2$ emissions from fuel combustion sources are presented in Table A-9 and Figure A-1. With the unavailability of any detailed source data for any individual plants, it is impossible to assess quantitatively either the impact of strict compliance with the regulations, or the effect of regulation revision.

## 2.3 BACKGROUND ON THE DEVELOPMENT OF THE CURRENT STATE IMPLEMENTATION PLAN

On January 31, 1972 and May 19, 1972 the State of New York submitted their Air Quality Implementation Plan as required by EPA. On May 31, 1972, and September 22, 1972 the Administrator of the EPA granted 18-month extensions for submission of plans to attain the secondary particulate standards for the New York portion of the New Jersey - New York - Connecticut AQCR, the Niagara Frontier AQCR, and the Central New York AQCR. He also granted 18-month extensions for submission of plans to attain secondary $SO_2$ standards for the New York portion of the New Jersey - New York - Connecticut AQCR, and the Niagara Frontier AQCR. EPA eliminated the need for the $SO_2$ plans by

revoking the 24-hour and annual average secondary $SO_2$ standards. The required particulate plans were submitted on July 31, 1973, and were disapproved because they did not demonstrate the attainment of the secondary particulate control regulations for the three affected regions.

## 3.0 AQCR ASSESSMENTS

The purpose of this section is to evaluate the available information for the State of New York and determine the feasibility of revisions to the SIP which would result in clean fuel conservation. The assessments will be made by AQCR addressing each type of fuel combustion source: power plants, other point sources, and area sources. The criteria used to make the assessments are listed and tabulated in Section 2.1 and Table 2-1 of this report. Tables B-1 and B-2 present a quantitative display of some of the criteria in Table 2-1.

The source type groups are evaluated separately using such variables for criteria as modeling results, emissions data from the SIP and air quality data.

### 3.1 CENTRAL NEW YORK INTRASTATE AQCR 158

#### 3.1.1 Regional Assessment

The Central New York AQCR was determined to have a poor potential for particulate regulation revision, and a good potential for $SO_2$ regulation revision. The indicators are summarized below:

- Particulates - A proposed Air Quality Maintenance Area, numerous violations of the air quality standards in 1973, no tolerance for emission increase, and a high percentage of the total emissions contributed by fuel combustion sources.
- Sulfur Dioxide - All indicators considered indicate a good potential except the high percentage of the total emissions contributed by fuel combustion sources.

Tables B-1 and B-2 list the indicators by AQCR for particulates and $SO_2$ respectively.

#### 3.1.2 Power Plant Assessment

There is one power plant in the Central New York AQCR. Available source data are presented in Table C-1. This plant was the subject of a recent modeling effort by Walden Research Division of Abcor, Inc. The results are presented in Table C-4, and indicate that the plant has not contributed sufficient $SO_2$ to violate the ambient air standards, based on its

1972 operations. No modeling of particulates was accomplished, nor was any evaluation made of the effects of alternate fuels.

### 3.1.3 Point Source Assessment

Available data on point sources is found in Tables D-1 and D-2, and is limited to data published in the New York SIP. No modeling of point sources has been accomplished, therefore an assessment of their impact on air quality cannot be made.

### 3.1.4 Area Source Assessment

Tables E-1 and E-2 present the available area source data. Insufficient data are available to evaluate the impact of area sources on air quality.

## 3.2 CHAMPLAIN VALLEY INTERSTATE AQCR 159

### 3.2.1 Regional Assessment

The regional evaluation of the regulation revision potential in the Champlain Valley AQCR resulted in ratings of poor for particulates and $SO_2$. The indicators are as follows:

- Particulates - reported violations of the particulate air quality standards in 1973, and no tolerance for emission increase.
- Sulfur Dioxide - all indicators examined suggested a good potential except for a 1974 air quality violation in the Vermont portion of the AQCR.

Tables B-1 and B-2 list these indicators by AQCR for particulates and $SO_2$ respectively.

### 3.2.2 Power Plant Assessment

There are no power plants in the New York portion of the Champlain Valley AQCR.

### 3.2.3 Point Source Assessment

Tables D-1 and D-2 show the available point source data from the SIP.

No point source modeling results are available, and therefore no assessment can be made of the point source effect on air quality.

### 3.2.4 Area Source Assessment

Tables E-1 and E-2 show the area source data obtained from the SIP. No evaluation can be made of the impact of these sources on regional air quality.

## 3.3 GENESEE-FINGER LAKES INTRASTATE AQCR 160

### 3.3.1 Regional Assessment

The regional evaluation of the Genesee-Finger Lakes AQCR resulted in a poor potential for particulate regulation revision and a marginal potential for revision of $SO_2$ regulations. The pertinent indicators are as follows:

- Particulates - proposed Air Quality Maintenance Area designations, violations of the particulate air quality standards in 1973, and no tolerance for emission increase.
- Sulfur Dioxide - all indicators point to a good potential for revision of $SO_2$ regulations except for the high percentage of total emissions which are contributed by combustion sources. The potential was rated as marginal, because it was felt that the good air quality was due to a previous power plant fuel switch from coal to oil, and any conversion back to coal, would result in air quality standard violations.

The indicators for particulates and $SO_2$ are presented by AQCR in Tables B-1 and B-2 respectively.

### 3.3.2 Power Plant Assessment

There are three power plants in the Genesee-Finger Lakes AQCR. All available source data are presented in Table C-1, and modeling results are presented in Table C-4. The modeling results indicate that none of the three plants contributed enough $SO_2$ in 1972 to cause violations of the $SO_2$ air quality standard by themselves. No particulate modeling results are available, nor are there any evaluations of the impact on air quality of fuel conversions.

### 3.3.3 Point Source Assessment

Available point source information is presented in Tables D-1 and D-2. No point source modeling results are available with which to assess the impact on air quality from sources of this category.

### 3.3.4 Area Source Assessment

Area source fuel combustion data are presented in Tables E-1 and E-2. The limited nature of the available area source data makes it impossible to assess the impact on air quality.

## 3.4 HUDSON VALLEY INTRASTATE AQCR 161

### 3.4.1 Regional Assessment

Evaluation of the Hudson Valley AQCR indicated the region has a poor potential for particulate regulation revision and a poor potential for $SO_2$ revision. The indicators are listed below:

- Particulates - proposed Air Quality Maintenance Area designations, reported violations of particulate air quality standards in 1973, no tolerance for emission increase, and modeling results showing power plants to be violating air quality standards with currently used fuels.
- Sulfur Dioxide - proposed Air Quality Maintenance Area designations, modeling results showing that fuel conversions will cause power plants to violate $SO_2$ air quality standards, and fuel combustion sources contributing a high percentage of the total $SO_2$ emissions. In addition, the tolerance for emission increase is relatively small.

All indicators for both particulates and $SO_2$ are presented in Tables B-1 and B-2 respectively.

### 3.4.2 Power Plant Assessment

There are three power plants in the Hudson Valley AQCR. Two of these (Albany, and Danskammer) were modeled by Walden, and the results are listed in Table C-3. To summarize the results, they indicate that a fuel conversion at either plant would be detrimental, and would produce air quality levels which exceed both the particulate and the $SO_2$ ambient air quality standards. No modeling results are available for the third plant.

### 3.4.3 Point Source Assessment

No modeling results are available for point sources in this region and therefore it is impossible to evaluate their impact on air quality. Point source data from the SIP are presented in Tables D-1 and D-2.

### 3.4.4 Area Source Assessment

Area source data from the SIP are presented in Tables E-1 and E-2. No evaluation can be made based on the limited data available.

## 3.5 NEW JERSEY - NEW YORK - CONNECTICUT INTERSTATE AQCR 43

### 3.5.1 Regional Assessment

Both the particulate and $SO_2$ regulation revision potentials were considered to be poor for the New York portion of this region. Pertinent indicators are listed below:

- Particulates - proposed Air Quality Maintenance Areas, a 1977 date for attaining the particulate air quality standards, 1973 air quality data showing violations of the particulate standards, no tolerance for emission increase, and a high ratio of fuel combustion emissions to total emissions.

- Sulfur Dioxide - proposed air quality maintenance areas, 1973 air quality data showing violations of the $SO_2$ standards (some of the violations were during the first four months of 1973 when the State granted $SO_2$ variances due to fuel shortages), no tolerance for emission increase, and a high ratio of fuel combustion emissions to total emissions.

The indicators are listed in Tables B-1 and B-2 for particulate and $SO_2$ respectively.

### 3.5.2 Power Plant Assessment

There are 17 power plants in the New York portion of the region. They were all modeled by Walden in one of two groups. The first group includes the 74th Street, Waterside, Arthur Kill, Astoria, Ravenswood, Barrett, Far Rockaway, Port Jefferson, Bowline, and Lovett plants. The results of the modeling of these ten plants are presented in Table C-3, and for seven of the ten plants include expected maximum concentrations following a fuel conversion. Both particulates and $SO_2$ were modeled for these ten plants.

The other seven plants were modeled later and include the 59th Street, East River, Indian Point, Hell Gate, Hudson Avenue, Glenwood and Northwood plants. These results are for $SO_2$ only, 1972 operations only (no fuel conversion), and are presented in Table C-4.

A summary of the modeling results indicate that two of the plants (Bowline and Lovett) violate the particulate standards based on 1972 operations, and none violate the $SO_2$ standard. After a fuel conversion (fuel data are in Table C-2), of those modeled, three plants (Astoria, Port Jefferson, and Lovett) can be expected to violate the particulate standards, and one (Lovett) can be expected to violate the $SO_2$ standards.

One thing must be kept in mind when evaluating these modeling results. The listed concentrations include the contribution from only the applicable power plant. They do not include the contribution from other nearby sources. In some cases the results do consider the contribution from other power plants, and are footnoted as such in the tables.

### 3.5.3 Point Source Assessment

Available point source data are shown in Tables D-1 and D-2. These data are taken from the New York SIP, and with no point source modeling results are inadequate to assess the point source impact on air quality.

### 3.5.4 Area Source Assessment

Area source data from the New York SIP are presented in Tables E-1 and E-2. There are insufficient data available with which to make an assessment of the area source impact on air quality.

## 3.6 NIAGARA FRONTIER INTRASTATE AQCR 162

### 3.6.1 Regional Assessment

The regulation revision potentials in the Niagara Frontier AQCR were rated as poor for both particulates and $SO_2$. The indicators on which these ratings were based are listed below:

- Particulates - proposed Air Quality Maintenance Areas, 1977 expected data of attainment for particulate air quality standards, reported violations of air quality standards in 1973, and no tolerance for particulate emission increase.

- Sulfur Dioxide - proposed Air Quality Maintenance Areas, 1977 expected date of attainment for $SO_2$ air quality standards, reported violations of air quality standards in 1973, and no tolerance for $SO_2$ emission increase.

Tables B-1 and B-2 list the indicators for particulate and $SO_2$ respectively.

### 3.6.2 Power Plant Assessment

There is only one power plant in the Niagara Frontier AQCR. Its source data are shown in Table C-1. 1972 operations at this plant were modeled by Walden, and the estimated maximum ground level concentrations of $SO_2$ are presented in Table C-4. The results indicate that this plant alone did not contribute a sufficient amount of $SO_2$ to violate the ambient air quality standards.

### 3.6.3 Point Source Assessment

No assessment of point source impact on air quality can be made due to the lack of modeling data for this class of sources. Available point source data from the SIP are presented in Tables D-1 and D-2.

### 3.6.4 Area Source Assessment

Area source data from the SIP are presented in Tables E-1 and E-2. No further evaluation of area sources is possible without additional data.

## 3.7 SOUTHERN TIER EAST INTRASTATE AQCR 163

### 3.7.1 Regional Assessment

The regulation revision potentials in the Southern Tier East AQCR are poor for particulate and good for $SO_2$. The pertinent indicators are listed below:

- Particulates - proposed Air Quality Maintenance Areas, 1973 air quality data indicating violations of the air quality standards, no tolerance for emission increase, and fuel combustion sources contribute a large portion of the total emissions. It is felt however that because of the very rural nature of the AQCR, any air quality problems are localized, and should be evaluated on a case by case basis.

- Sulfur Dioxide - all indicators point to a good rating except the high contribution by fuel combustion sources, and some power plant modeling results which indicate they cannot change fuel types.

Tables B-1 and B-2 list the particulate and $SO_2$ indicators respectively by AQCR.

### 3.7.2 Power Plant Assessment

There are two power plants in this region, as listed in Table C-1 with their source data. Both plants were modeled by Walden, and based on their 1972 operations, they both emit sufficient quantities of $SO_2$ to violate the ambient air quality standards. The modeling results are presented in Table C-4.

### 3.7.3 Point Source Assessment

The available point source data from the SIP are presented in Tables D-1 and D-2. No assessment of the impact of point sources can be made due to the lack of point source modeling data.

### 3.7.4 Area Source Assessment

The only available data on area sources was taken from the SIP and appear in Tables E-1 and E-2. These data are insufficient for an assessment of the area source impact on air quality.

## 3.8 SOUTHERN TIER WEST INTRASTATE AQCR 164

### 3.8.1 Regional Assessment

The Southern Tier West AQCR was determined to have a poor potential for particulate regulation revision and a marginal potential for $SO_2$ revision.

The indicators are summarized below:

- Particulates - proposed Air Quality Maintenance Areas, 1973 violations of air quality standards, no tolerance for emission increase, and a high ratio of fuel combustion emissions to total emissions.
- Sulfur Dioxide - high ratio of fuel combustion emissions to total emissions, and modeling results indicating that fuel conversion by power plants is not feasible.

Tables B-1 and B-2 list the indicators by AQCR for particulates and $SO_2$ respectively.

### 3.8.2 Power Plant Assessment

There are four power plants in the region. 1972 operations at three of these were modeled by Walden, and the results indicate that all three were exceeding the $SO_2$ standard in 1972. No particulate modeling or fuel switching results are available.

### 3.8.3 Point Source Assessment

Point source data from the New York SIP appear in Tables D-1 and D-2. Since no point source modeling results are available, no assessment can be made of the point source impact on air quality.

### 3.8.4 Area Source Assessment

Tables E-1 and E-2 show the area source data from the SIP. No further analysis can be performed for area sources without additional data.

# APPENDIX A

# STATE IMPLEMENTATION PLAN BACKGROUND

TABLE A-1 NEW YORK AIR POLLUTION CONTROL AREAS

| AQCR Name | AQCR No. | AQCR Priority Classification[a] | | | 1975[b] AQCR Population (millions) | Proposed AQMA Designations | |
|---|---|---|---|---|---|---|---|
| | | TSP | $SO_2$ | $NO_x$ | | TSP Counties | $SO_2$ Counties |
| Central New York | 158 | I | II | III | 1.3 | Herkimer[c], Oneida[c], Onondaga | No |
| Champlain Valley[d] | 159 | II | II | III | 0.6 | No | No |
| Genesee-Finger Lakes | 160 | II | II | III | 1.2 | Livingston[c], Ontario[c], Monroe, Wayne[c] | No |
| Hudson Valley | 161 | I | II | III | 1.7 | Albany[c], Montgomery[c], Rensselear[c], Saratoga[c], Schenectady[c], Dutchess[c], Orange, Putnam, Ulster[c] | Albany[c], Montgomery[c], Rensselear[c], Saratoga[c], Schenectady[c] |
| New Jersey, New York, Connecticut[d] | 43 | I | I | I | 18.7 | Bronx, Kings, New York, Queens, Richmond, Nassau, Rockland, Suffolk, Westchester | Bronx, Kings, New York, Queens, Richmond, Nassau, Rockland, Suffolk, Westchester |
| Niagara Frontier | 162 | I | I | III | 1.4 | Erie, Niagara | Erie, Niagara |
| Southern Tier East | 163 | II | II | III | 0.5 | Broome[c], Tioga[c] | No |
| Southern Tier West | 164 | II | II | III | 0.6 | Chautauqua[c], Chemung[c], Steuben[c] | No |

[a] Classification based on maximum measured (or estimated) pollution concentration in the area:

| Priroity | I | II | III |
|---|---|---|---|
| | Greater than | From - To | Less than |
| Sulfur oxide: | | | |
| Annual arithmetic mean | 100 | 60-100 | 60 |
| 24-hour maximum | 455 | 260-455 | 260 |
| Particulate matter: | | | |
| Annual geometric mean | 95 | 60-95 | 60 |
| 24-hour maximum | 325 | 150-325 | 150 |

[b] AQCR population projections from: Projections of Economic Activity for Air Quality Control Regions, prepared by U.S. Department of Commerce, Bureau of Economic Analysis, August 1973.

[c] Less than the entire county designated.

[d] Interstate Region.

TABLE A-2 ATTAINMENT DATES

| AQCR | AQCR No. | TSP Attainment Dates | | $SO_2$ Attainment Dates |
|---|---|---|---|---|
| | | Primary | Secondary | |
| Central New York | 158 | 7/75 | a | b |
| Champlain Valley | 159 | b | b | b |
| Genesee-Finger Lakes | 160 | 7/75 | 7/75 | 7/75 |
| Hudson Valley | 161 | 7/75 | 7/75 | 7/75 |
| New Jersey, New York Connecticut | 43 | 7/77 | a | 7/75 |
| Niagara Frontier | 162 | 7/77 | a | 7/77 |
| Southern Tier East | 163 | 7/75 | 7/75 | b |
| Southern Tier West | 164 | b | 7/75 | b |

[a] 18-month extension granted.

[b] Air quality levels were below standards when attainment dates were established.

TABLE A-3 AMBIENT AIR QUALITY STANDARDS ($\mu g/m^3$)

| | TSP | | | $SO_2$ | | | | $NO_2$ |
|---|---|---|---|---|---|---|---|---|
| | Level[a] | Annual | 24 hr | Annual | 24 hr | 3 hr | 1 hr | Annual |
| Federal | | | | | | | | |
| Primary | --- | 75[b] | 260[c] | 80[d] | 365[c] | --- | --- | 100[d] |
| Secondary | --- | 60[b] | 150[c] | -- | --- | 1300[c] | --- | 100[d] |
| New York | I | 45[e]/70[f] | 250 | 80[d] | 260[g]/365[h] | --- | 650[i]/1300[j] | 100[d] |
| | II | 55[e]/85[f] | 250 | -- | --- | --- | --- | -- |
| | III | 65[e]/100[f] | 250 | -- | --- | --- | --- | -- |
| | IV | 75[e]/110[f] | 250 | -- | --- | --- | --- | -- |

[a] Levels (applicable to New York TSP standards only), based on land use:

Level I - predominantly used for timber agricultural crops, dairy farming or recreation. Habitation and industry sparse.

Level II - predominantly single and two family residences, small farms, and limited commercial services and industrial development.

Level III - densely populated, primarily commercial office buildings, department stores, and light industries in small and medium metropolitan complexes, or suburban areas of limited commercial and industrial development near large metropolitan complexes.

Level IV - densely populated, primarily commercial office buildings, department stores and industries in large metropolitan complexes or areas of heavy industry.

[b] Annual geometric mean.

[c] Maximum concentration not to be exceeded more than once a year.

[d] Annual arithmetic mean.

[e] Value not to be exceeded by more than 50 percent of the 24-hour average concentrations during any 12 consecutive months.

Footnotes continued on following page

TABLE A-3 footnotes continued

[f] Value not to be exceeded by more than 16 percent of the 24-hour average concentrations during any 12 consecutive months.

[g] Value not to be exceeded by more than one percent of the 24-hour average concentrations during any 12 consecutive months.

[h] 24-hour average concentration not to be exceeded.

[i] Value not to be exceeded by more than one percent of the one-hour average concentrations during any 12 consecutive months.

[j] One-hour average concentration not to be exceeded.

TABLE A-4 NEW YORK AQCR AIR QUALITY STATUS (1973), TSP[a]

| AQCR Name | AQCR No. | No. Stations Reporting | TSP Concentration ($\mu g/m^3$) | | | No. Stations Violating Federal Ambient Air Quality Standards | | | | | | % Reduction Required to meet Standards[c] | Standard on Which Reduction Is Based |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Highest Reading | | 2nd Highest Reading 24-hour | Primary | | Secondary | | | | | |
| | | | Annual | 24-hour | | Annual | 24-hr[b] | Annual | % | 24-hr[b] | % | | |
| Central New York | 158 | 47 | 118 | 414 | 378 | 6 | 3 | 11 | 23.4 | 12 | 25.5 | 69.9 | Annual |
| Champlain Valley[d] | 159 | 18 | 102[e] | 262 | 211 | 1 | 0 | 2 | 11.1 | 2 | 11.1 | 58.3 | Annual |
| Genesee-Finger Lakes | 160 | 28 | 85 | 450 | 171 | 2 | 0 | 3 | 10.7 | 2 | 7.1 | 50.0 | Annual |
| Hudson Valley | 161 | 40 | 111 | 581 | 389 | 6 | 4 | 16 | 40.0 | 12 | 30.0 | 67.5 | 24-hour |
| New Jersey, New York, Connecticut[d] | 43 | 166 | 125[f] | 489 | 462 | 12 | 13 | 36 | 21.7 | 46 | 27.7 | 72.2 | Annual |
| Niagara Frontier | 162 | 47 | 123 | 558 | 385 | 12 | 3 | 29 | 61.7 | 24 | 51.1 | 75.9 | Annual |
| Southern Tier East | 163 | 14 | 58 | 220 | 159 | 0 | 0 | 0 | 0 | 1 | 7.1 | 7.0 | 24-hour |
| Southern Tier West | 164 | 19 | 94 | 342 | 243 | 2 | 0 | 5 | 26.3 | 5 | 26.3 | 53.1 | Annual |

[a] 1973 air quality data in National Air Data Bank as of July 28, 1974.

[b] Violations based on second highest reading at any station.

[c] Formula: $\frac{\text{(2nd Highest 24-hr - 24-hr Secondary Standard)}}{\text{(2nd Highest 24-hr - Background)}} \times 100$ or $\frac{\text{(Highest Annual - Annual Secondary Standard)}}{\text{(Highest Annual - Background)}} \times 100$

whichever is more stringent.

Background levels used:

| AQCR | Background ($\mu g/m^3$) |
|---|---|
| 158 | 35 |
| 159 NY | 30 |
| 159 VT | 30 |
| 160 | 35 |
| 161 | 35 |
| 43 NY | 35 |
| 43 NJ | 35 |
| 43 CONN. | 35 |
| 162 | 40 |
| 163 | 30 |
| 164 | 30 |

[d] Interstate Region

[e] Reading occurred in Vermont. Highest New York reading 56 $\mu g/m^3$.

[f] Reading occurred in New Jersey. Highest New York reading 101 $\mu g/m^3$.

TABLE A-5 NEW YORK AQCR AIR QUALITY STATUS (1973), $SO_2$[a]

| AQCR Name | AQCR No. | No. Stations Reporting | | $SO_2$ Concentration ($\mu g/m^3$) | | | No. Stations Violating Federal Ambient Air Quality Standards | | | % Reduction Required to meet Standards[c] | Standard on Which Reduction is Based |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Highest Reading | | 2nd Highest Reading | Primary | | Secondary | | |
| | | 24-hr Bubbler | Contin. | Annual | 24-hr[b] | 24-hr | Annual | 24-hour[b] | 3-hour | | |
| Central New York | 158 | 7 | 5 | 40 | 84 | 70 | 0 | 0 | 0 | -100.0 | Annual |
| Champlain Valley[d,f] | 159 | 2 | 3 | 35 | 461 | 453[e] | 0 | 1 | 0 | j | Annual |
| Genesee-Finger Lakes | 160 | 15 | 1 | 48 | 262 | 128 | 0 | 0 | 0 | - 66.7 | Annual |
| Hudson Valley | 161 | 10 | 4 | 64 | 223 | 134 | 0 | 0 | 0 | - 25.0 | Annual |
| New Jersey, New York, Connecticut[d] | 43 | 47 | 71 | 115 | 1381[g] | 93[h] | 11 | 10[i] | 2 | + 30.4 | Annual |
| Niagara Frontier | 162 | 24 | 8 | 96 | 1729 | 335 | 2 | 0 | 0 | + 16.7 | Annual |
| Southern Tier East | 163 | 1 | 1 | 45 | 154 | 65 | 0 | 0 | 0 | - 77.8 | Annual |
| Southern Tier West | 164 | 2 | 0 | 56 | 320 | 71 | 0 | 0 | 0 | - 42.9 | Annual |

[a] 1973 air quality data in National Air Data Bank as of July 28, 1974.

[b] Violations based on second highest reading at any station.

[c] Formula: $\frac{\text{(2nd Highest 24-hr - 24-hr Standard)}}{\text{2nd Highest 24-hr}} \times 100$ or $\frac{\text{(Highest Annual - Annual Standard)}}{\text{Highest Annual}} \times 100$

whichever is more stringent.

[d] Interstate region.

[e] This reading occurred in the Vermont portion of the AQCR (1974 data).

[f] All noted values occurred in New York.

[g] Reading occurred in Connecticut. Highest New York reading 930 $\mu g/m^3$.

[h] Reading occurred in New Jersey. Highest New York reading 86 $\mu g/m^3$. Second highest values not reported in New York City.

[i] National Air Data Bank contains number of violations of 24-hour standard, but actual concentrations are not listed.

[j] Based on 1973 data. However there was a violation of the NAAQS in Vermont in 1974.

TABLE A-6 NEW YORK FUEL COMBUSTION SOURCE SUMMARY

| AQCR Name | AQCR No. | No. of Power Plants[a] | No. of Area Sources | Total AQCR Emissions[b] (tons/yr) | | % AQCR Emissions From N.Y. Fuel Combustion Sources | |
|---|---|---|---|---|---|---|---|
| | | | | Part. | $SO_2$ | Part. | $SO_2$ |
| Central New York | 158 | 1 | 9 | 30,955 | 106,985 | 53.5 | 97.2 |
| Champlain Valley[c] | 159 | 0 | 7 | 60,142 | 40,183 | 7.1 | 65.5 |
| Genesee-Finger Lakes | 160 | 3 | 9 | 44,461 | 148,622 | 49.5 | 95.3 |
| Hudson Valley | 161 | 3 | 13 | 57,872 | 147,509 | 44.7 | 97.0 |
| New Jersey, New York,[c] Connecticut | 43 | 17 | 9 | 292,396 | 1,015,983 | 33.5 | 61.4 |
| Niagara Frontier | 162 | 1 | 2 | 124,617 | 168,874 | 35.4 | 85.5 |
| Southern Tier East | 163 | 2 | 6 | 18,400 | 38,640 | 63.5 | 98.1 |
| Southern Tier West | 164 | 4 | 7 | 34,548 | 114,698 | 62.2 | 98.9 |

[a] New York power plants only.

[b] New York emission data from New York State and City Implementation Plans (1970 data). Vermont, New Jersey, and Connecticut data from NEDS.

[c] Interstate region.

TABLE A-7 NEW YORK EMISSIONS SUMMARY[a], PARTICULATES

| AQCR Name | AQCR No. | Total (Tons/yr) | Percent Fuel Combustion[b] | Electricity Generation Point Sources | | Other Point Source Fuel Combustion | | Area Source Fuel Combustion | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | (Tons/yr) | %[b] | (Tons/yr) | %[b] | (Tons/yr) | %[b] |
| Central New York | 158 | 30,955 | 54.0 | 2,401 | 7.7 | 9,479 | 30.6 | 4,859 | 15.7 |
| Champlain Valley | 159 | 60,142 | 10.9 | 1,147 | 1.9 | 2,196 | 3.7 | 3,225 | 5.4 |
| New York Portion | | 53,698 | 8.0 | 0 | 0.0 | 1,885 | 3.5 | 2,414 | 4.5 |
| Vermont Portion | | 6,444 | 35.2 | 1,147 | 17.8 | 311 | 4.8 | 811 | 12.6 |
| Genesee-Finger Lakes | 160 | 44,461 | 49.7 | 10,340 | 23.3 | 5,039 | 11.3 | 6,729 | 15.1 |
| Hudson Valley | 161 | 57,872 | 44.8 | 12,272 | 21.2 | 6,315 | 10.9 | 7,363 | 12.7 |
| New Jersey, New York, Connecticut | 43 | 292,396 | 47.7 | 29,556 | 10.1 | 29,431 | 10.1 | 80,514 | 27.5 |
| New York Portion | | 177,392 | 55.2 | 16,189 | 9.1 | 20,203 | 11.4 | 61,607 | 34.7 |
| New Jersey Portion | | 102,784 | 30.7 | 8,185 | 8.0 | 9,032 | 8.8 | 14,323 | 13.9 |
| Connecticut Portion | | 12,220 | 81.5 | 5,182 | 42.4 | 196 | 1.6 | 4,584 | 37.5 |
| Niagara Frontier | 162 | 124,617 | 35.4 | 9,578 | 7.7 | 31,198 | 25.0 | 3,392 | 2.7 |
| Southern Tier East | 163 | 18,400 | 63.5 | 6,727 | 36.6 | 1,083 | 5.9 | 3,868 | 21.0 |
| Southern Tier West | 164 | 34,548 | 62.2 | 12,216 | 35.4 | 1,997 | 5.8 | 7,334 | 21.2 |

[a] New York emission data from New York State and City Implementation Plans (1970 data). Vermont, New Jersey, and Connecticut data from NEDS.

[b] Percentage of total emissions.

TABLE A-8 NEW YORK EMISSIONS SUMMARY[a], $SO_2$

| AQCR Name | AQCR No. | Total (Tons/yr) | Percent Fuel Combustion[b] | Electricity Generation Point Sources | | Other Point Source Fuel Combustion | | Area Source Fuel Combustion | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | (Tons/yr) | %[b] | (Tons/yr) | %[b] | (Tons/yr) | %[b] |
| Central New York | 158 | 106,985 | 97.2 | 41,287 | 38.6 | 39,601 | 37.0 | 23,048 | 21.5 |
| Champlain Valley | 159 | 40,183 | 93.9 | 698 | 1.7 | 21,146 | 52.6 | 15,906 | 39.6 |
| New York Portion | | 31,551 | 94.2 | 0 | 0.0 | 19,382 | 61.4 | 10,345 | 32.8 |
| Vermont Portion | | 8,632 | 92.9 | 698 | 8.1 | 1,764 | 20.4 | 5,561 | 64.4 |
| Genesee-Finger Lakes | 160 | 148,622 | 98.1 | 75,239 | 50.6 | 50,770 | 34.2 | 19,757 | 13.3 |
| Hudson Valley | 161 | 147,509 | 97.0 | 78,540 | 53.2 | 27,987 | 19.0 | 36,605 | 24.8 |
| New Jersey, New York, Connecticut | 43 | 1,015,983 | 92.9 | 474,080 | 46.7 | 77,660 | 7.6 | 391,630 | 38.5 |
| New York Portion | | 640,402 | 97.5 | 278,888 | 43.5 | 32,443 | 5.1 | 313,022 | 48.9 |
| New Jersey Portion | | 317,693 | 82.6 | 154,682 | 48.7 | 44,577 | 14.0 | 63,314 | 19.9 |
| Connecticut Portion | | 57,888 | 97.5 | 40,510 | 70.0 | 640 | 1.1 | 15,294 | 26.4 |
| Niagara Frontier | 162 | 168,874 | 85.5 | 66,053 | 39.1 | 67,510 | 40.0 | 10,741 | 6.4 |
| Southern Tier East | 163 | 38,640 | 98.1 | 21,712 | 56.2 | 4,345 | 11.2 | 11,842 | 30.6 |
| Southern Tier West | 164 | 114,698 | 98.9 | 91,914 | 80.1 | 5,617 | 4.9 | 15,913 | 13.9 |

[a] New York emission data from New York State and City Implementation Plans (1970 data). Vermont, New Jersey, and Connecticut data from NEDS.

[b] Percentage of total emissions.

TABLE A-9 NEW YORK MAXIMUM SULFUR CONTENT LIMITATIONS

| | Oil (percent Sulfur by weight) | Solid Fuel (Pounds of Sulfur per $10^6$ BTU) |
|---|---|---|
| New York City: | | |
| Bronx County<br>Kings County<br>New York County<br>Queens County<br>Richmond County | 0.30<br>0.20[a] | 0.2 |
| Nassau County<br>Rockland County<br>Westchester County | 0.37 | 0.20 |
| Towns of: | | |
| Babylon<br>Brookhaven<br>Huntington<br>Islip<br>Smithtown<br>(in Suffolk County) | 1.0[b] | 0.6[b] |
| Erie County<br>Niagara County | 2.2[b,c] | 1.4[b] |
| Remainder of State | 2.0[b] | 1.9[b] |

[a] Distillate

[b] Maximum sulfur content 0.75 percent sulfur by weight for oil, and 0.6 pounds sulfur per million BTU for coal in sources meeting the following criteria:

- Rated capacity greater than 250 million BTU per hour, and
- Application for a permit to construct received by the Department or an application for a certificate of environmental compatibility and public need received by the Public Service Commission after March 15, 1973, and
- Installation is not located in New York City, Nassau, Rockland or Westchester County.

[c] Decreases to 1.1% effective October 1, 1975.

NEW YORK STATIONARY FUEL COMBUSTION SOURCE PARTICULATE
LIMITATION REGULATIONS

1. Two hour average particulate emission shall not exceed 0.10 pounds per million BTU heat input from:

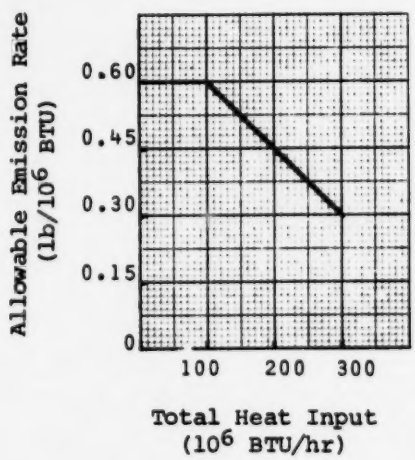
   a) Any oil fired stationary combustion installation, or

   b) any coal fired stationary combustion installations of more than 250 million BTU per hour total heat input for which an application for a Permit to Construct is submitted subsequent to August 12, 1972.

2. Installations with a total heat input equal to or less than 300 million BTU per hour and in operation prior to June 1, 1972 are limited to the following allowable emission rates:

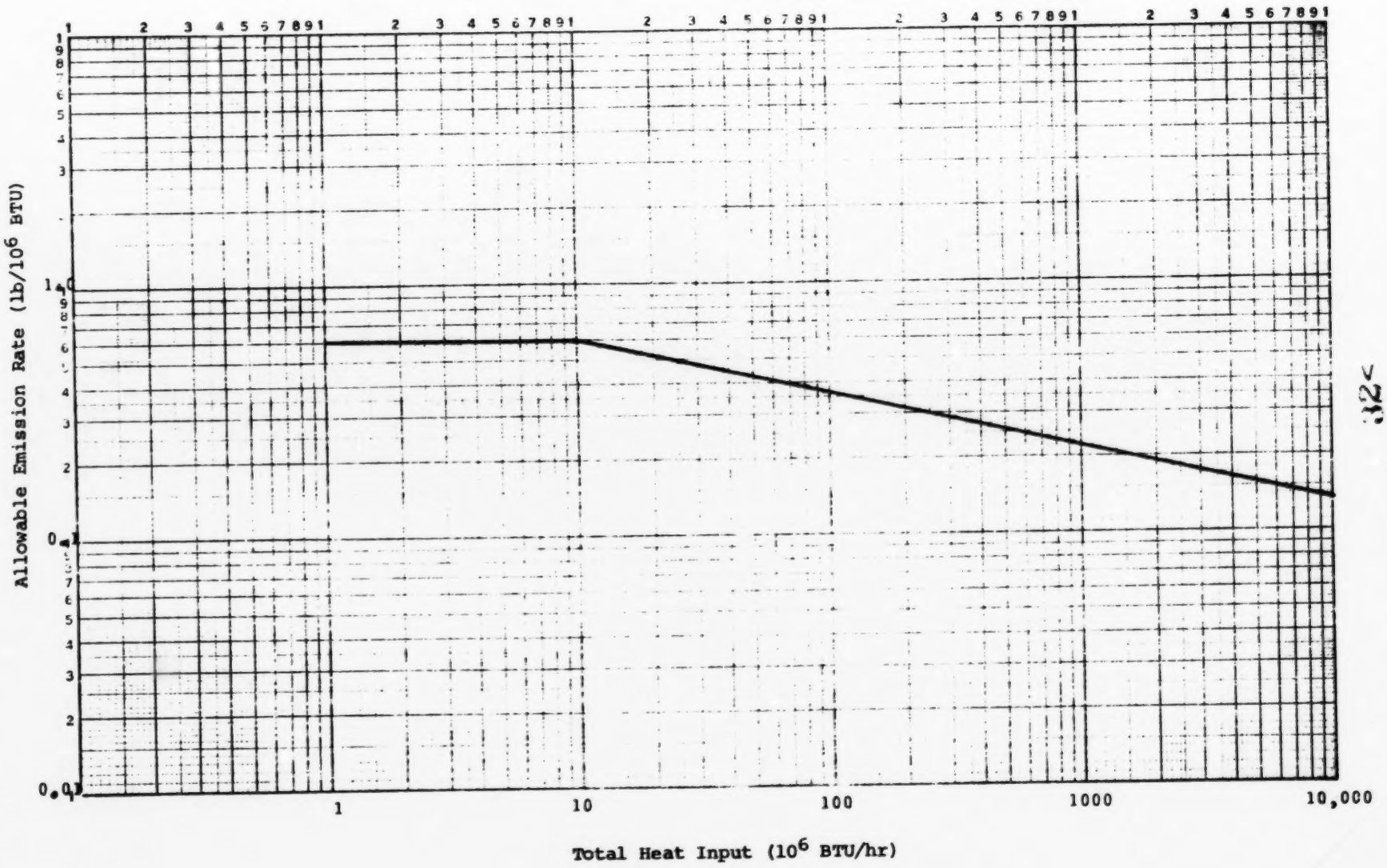
   a) Spreader stokers - 0.60 pounds per million BTU input

   b) Other than spreader stokers - maximum emission rate as shown on the following graph:




3. All other sources are limited to the maximum emission rate as shown on the graph of Figure A-1 except sources smaller than one million BTU per hour which are exempt from the regulation.

FIGURE A-1 NEW YORK FUEL COMBUSTION MAXIMUM PARTICULATE EMISSIONS



# APPENDIX B

# REGIONAL AIR QUALITY SUMMARY

TABLE B-1 REGIONAL INDICATORS FOR REVISION OF PARTICULATE REGULATIONS

| AQCR Name | AQCR No. | No. of Stations Reporting | No. of Stations Violating Standards[a] | Expected Attainment Date | Total Emissions (T/yr)[b] | % Emissions from N.Y. Fuel Combustion | Proposed AQMA Designations | Tolerance for Emission Increase (T/yr)[c] |
|---|---|---|---|---|---|---|---|---|
| Central New York | 158 | 47 | 14 | e | 30,955 | 54.0 | yes | 0 |
| Champlain Valley[d] | 159 | 18 | 3 | f | 53,698 | 8.0 | no | 0 |
| Genesee-Finger Lakes | 160 | 28 | 3 | 7/75 | 44,461 | 49.7 | yes | 0 |
| Hudson Valley | 161 | 40 | 19 | 7/75 | 57,872 | 44.8 | yes | 0 |
| New Jersey, New York, Connecticut[d] | 43 | 166 | 58 | e | 177,392 | 55.2 | yes | 0 |
| Niagara Frontier | 162 | 47 | 32 | e | 124,617 | 35.4 | yes | 0 |
| Southern Tier East | 163 | 14 | 1 | 7/75 | 18,400 | 63.5 | yes | 0 |
| Southern Tier West | 164 | 19 | 6 | 7/75 | 34,548 | 62.4 | yes | 0 |

[a] 1973 SAROAD System data.

[b] For interstate regions this value is the contribution from sources in the New York portion only.

[c] Based on percent reduction required to meet standards from Table A-4 applied against total emissions.

[d] Interstate region.

[e] 18-month extension granted for submission of plan.

[f] Air quality levels were below standards when attainment dates were established.

TABLE B-2 REGIONAL INDICATORS FOR REVISION OF $SO_2$ REGULATIONS

| AQCR Name | AQCR No. | No. of Stations Reporting | No. of Stations Violating Standards[a] | Expected Attainment Date | Total Emissions (T/yr)[b] | % Emission from N.Y. Fuel Combustion | Proposed AQMA Designations | Tolerance for Emission Increase (T/yr)[c] |
|---|---|---|---|---|---|---|---|---|
| Central New York | 158 | 12 | 0 | e | 106,985 | 97.2 | no | 106,985 |
| Champlain Valley[d] | 159 | 5 | 1 | e | 31,551 | 94.2 | no | g |
| Genesee-Finger Lakes | 160 | 16 | 0 | 7/75 | 148,622 | 98.1 | no | 99,131 |
| Hudson Valley | 161 | 14 | 1 | 7/75 | 147,509 | 97.0 | yes | 36,877 |
| New Jersey, New York, Connecticut[d] | 43 | 118 | 12 | f | 640,402 | 97.5 | yes | 0 |
| Niagara Frontier | 162 | 32 | 2 | f | 168,874 | 85.5 | yes | 0 |
| Southern Tier East | 163 | 2 | 0 | e | 38,640 | 98.1 | no | 30,062 |
| Southern Tier West | 164 | 2 | 0 | 7/75 | 114,698 | 98.9 | no | 49,205 |

[a] 1973 SAROAD System data.

[b] For interstate regions this value is the contribution from sources in the New York portion only.

[c] Based on percent reduction required to meet standards from Table A-5 applied against total emissions.

[d] Interstate region.

[e] Air quality levels were below standards when attainment dates were established.

[f] 18-month extension granted for submission of plan.

[g] Based on 1973 data. However there was a violation of the NAAQS in Vermont in 1974.

# APPENDIX C

# POWER PLANT SUMMARY

TABLE C-1 POWER PLANT ASSESSMENT FOR NEW YORK

| AQCR Name | AQCR No. | Plant Ownership and (Name) | 1975 Capacity[a] MW | Fuel Type | Est. 1975 Quantity[b] | % S[c] By Regulation |
|---|---|---|---|---|---|---|
| Central New York | 158 | Niagara Mohawk Power (Oswego) | 1,192[d] | Oil | 3,571 | 2.00 |
| Genesee-Finger Lakes | 160 | N.Y. State Elec. & Gas (Greenidge) | 160 | Coal | 480 | 2.18 |
| | | Rochester Gas & Elec. (Rochester 3) | 196 | Coal | 208 | 2.45 |
| | | | | Oil | 998 | 2.00 |
| | | Rochester Gas & Elec. (Rochester 7) | 253 | Coal | 559 | 2.44 |
| Hudson Valley | 161 | Niagara Mohawk Power (Albany) | 400 | Oil | 4,197 | 2.00 |
| | | Central Hudson Gas & Elec. (Danskammer) | 537 | Oil | 5,172 | 2.00 |
| | | Central Hudson Gas & Elec. (Roseton 1 & 2)[e] | 1,242 | Oil | 16,757 | 2.00 |
| New Jersey, New York, Connecticut | 43 | Consolidated Edison of N.Y. (59th St.) | 185 | Oil | 1,433 | 0.30 |
| | | Consolidated Edison of N.Y. (74th St.) | 209 | Oil | 982 | 0.30 |
| | | Consolidated Edison of N.Y. (East River) | 776 | Oil | 2,063 | 0.30 |
| | | | | Gas | 17,664 | |
| | | Consolidated Edison of N.Y. (Waterside) | 672 | Oil | 2,494 | 0.30 |
| | | | | Gas | 9,008 | |
| | | Consolidated Edison of N.Y. (Indian Point) | 275 | Oil[f] | 651 | 0.37 |
| | | Consolidated Edison of N.Y. (Arthur Kill) | 912 | Oil | 5,605 | 0.30 |
| | | Consolidated Edison of N.Y. (Astoria) | 2,351[g] | Coal | 6 | 0.21 |
| | | | | Oil | 19,791 | 0.30 |
| | | | | Gas | 4,176 | |
| | | Consolidated Edison of N.Y. Ravenswood) | 1,828 | Oil | 12,904 | 0.30 |
| | | | | Gas | 5,104 | |
| | | Consolidated Edison of N.Y. (Hell Gate) | 311 | Oil | 3,445 | 0.30 |
| | | | | Gas | 3,156 | |
| | | Consolidated Edison of N.Y. (Hudson Ave.) | 715 | Oil | 3,398 | 0.30 |
| | | Long Island Lighting (Barrett) | 375 | Oil | 3,402 | 0.37 |
| | | | | Gas | 1,059 | |
| | | Long Island Lighting (Glenwood) | 380 | Oil | 2,684 | 0.37 |
| | | | | Gas | 1,078 | |
| | | Long Island Lighting (Far Rockaway) | 114 | Oil | 927 | 0.30 |
| | | | | Gas | 515 | |
| | | Long Island Lighting (Northport) | 1,161 | Oil | 8,365 | 2.0 |
| | | Long Island Lighting (Port Jefferson) | 467 | Oil | 4,405 | 2.0 |
| | | Orange and Rockland Util. (Bowline Pt.)[h] | 1,242[i] | Oil | 10,186 | 0.37 |
| | | | | Gas | 85 | |
| | | Orange and Rockland Util. (Lovett) | 495 | Oil | 3,363[j] | 0.37 |
| | | | | Gas | 9,657 | |
| Niagara Frontier | 162 | Niagara Mohawk Power (Huntley) | 828 | Coal | 1,380 | 2.15 |

TABLE C-1

| AQCR Name | AQCR No. | Plant Ownership and Name | 1975 Capacity[a] MW | Fuel Type | Est. 1975 Quantity[b] | % S[c] By Regulation |
|---|---|---|---|---|---|---|
| Southern Tier East | 163 | N.Y. State Elec. and Gas (Goudey) | 146 | Coal | 315 | 2.19 |
| | | N.Y. State Elec. and Gas (Jennison) | 60 | Coal | 169 | 1.98 |
| Southern Tier West | 164 | N.Y. State Elec. and Gas (Hickling) | 70 | Coal | 291 | 2.05 |
| | | N.Y. State Elec. and Gas (Milliken) | 270 | Coal | 660 | 2.19 |
| | | Niagara Mohawk Power (Dunkirk) | 628 | Coal | 1,286 | 2.41 |
| | | City of Jamestown (S.A. Carlson) | 81 | Coal | 115 | 2.37 |

[a] Source: Steam Electric Plant Factors, 1973 Edition, National Coal Association, Washington, D.C., January 1974.

[b] Coal in $10^3$ tons, Oil in $10^3$ bbl., Gas in $10^6$ cu. ft. If no projected change in generating capacity between 1972 and 1975, then 1972 consumption from the above reference assumed for 1975. Changes in fuel consumption due to increased generating capacity calculated using $8.5 \times 10^{10}$ BTU/yr input per megawatt (assumes 35% overall plant energy conversion efficiency) and $150 \times 10^3$ BTU per gallon of oil, and 1000 BTU per cubic foot of gas.

[c] Percent sulfur allowed for coal calculated from regulation (lb/$10^6$ BTU) using heat content of coal as listed in above reference.

[d] Includes an 816 megawatt addition in 1974.

[e] New plant in 1973.

[f] Also designed for nuclear power generation.

[g] Includes an 800 megawatt addition in 1975.

[h] Plant jointly owned by Consolidated Edison (2/3), and Orange and Rockland Utilities (1/3).

[i] Includes a 621 megawatt addition in 1974.

[j] Also burned 1,329 barrels of light oil.

TABLE C-2

POWER PLANT DATA USED FOR MODELING BY WALDEN

| AQCR Name | AQCR No. | Plant/Conversion | Oil Use | | Coal Use | | |
|---|---|---|---|---|---|---|---|
| | | | Amount ($10^3$ gal/yr) | Sulfur (%) | Amount[a] ($10^3$ T/yr) | Sulfur (%) | Ash (%) |
| Hudson Valley | 161 | Albany | | | | | |
| | | 1972 Operations | 176,274 | 2.4 | - | - | - |
| | | Switch Units 1-4 | - | - | 1036 | 3.0 | 15 |
| | | Danskammer | | | | | |
| | | 1972 Operations | 217,098 | 1.5 | - | - | - |
| | | Switch Units 1-4 | - | - | 1236 | 3.0 | 15 |
| New Jersey, New York, Connecticut | 43 | 74th Street | | | | | |
| | | 1972 Operations | 41,244 | 0.3 | - | - | - |
| | | Waterside | | | | | |
| | | 1972 Operations | 104,748 | 0.5 | - | - | - |
| | | Arthur Kill | | | | | |
| | | 1972 Operations | 260,274 | 0.4 | - | - | - |
| | | Switch Unit 30 | 133,980 | 0.4 | 710 | 3.0 | 15 |
| | | Astoria | | | | | |
| | | 1972 Operations | 377,874 | 0.4 | - | - | - |
| | | Switch Units 10, 20, 30, 40, 50 | - | - | 2117 | 2.5 | 10 |
| | | Ravenswood | | | | | |
| | | 1972 Operations | 541,968 | 0.4 | - | - | - |
| | | Switch Unit 30N, 30S | 269,220 | 0.4 | 1551 | 3.0 | 15 |
| | | Barrett | | | | | |
| | | 1972 Operations | 142,884 | 0.9 | - | - | - |
| | | Switch Unit 10 | 72,576 | 0.9 | 350 | 2.5 | 15 |

TABLE C-2
(cont)

| AQCR Name | AQCR No. | Plant/Conversion | Oil Use Amount ($10^3$gal/yr) | Oil Use Sulfur (%) | Coal Use Amount ($10^3$T/yr) | Coal Use Sulfur (%) | Coal Use Ash (%) |
|---|---|---|---|---|---|---|---|
| New Jersey, New York, | 43 | Far Rockaway | | | | | |
| | | 1972 Operations | 39,018 | 0.5 | - | - | - |
| | | Switch Unit 40 | - | - | 209 | 3.0 | 15 |
| | | Port Jefferson | | | | | |
| | | 1972 Operations | 185,010 | 2.4 | - | | |
| | | Switch Units 30, 40 | 27,426 | 2.4 | 782 | 3.0 | 15 |
| | | Bowline | | | | | |
| | | 1972 Operations | 84,504 | 0.4 | - | - | - |
| | | Lovett | | | | | |
| | | 1972 Operations | 141,246 | 0.7 | - | - | - |
| | | Switch Units 4,5 | 22,008 | 0.7 | 664 | 3.1 | 15 |

a Estimated by Walden on the basis of equivalent BTU heating value.

TABLE C-3

SUMMARY OF POWER PLANT MODELING RESULTS

| AQCR Name | AQCR No. | Plant/Conversion | Maximum 24-hr Concentration ($\mu g/m^3$) | | | | Max. Annual Conc. ($\mu g/m^3$) | |
|---|---|---|---|---|---|---|---|---|
| | | | Part. | | $SO_2$ | | | |
| | | | Nominal Load[a] | Max. Load[b] | Nominal Load[a] | Max. Load[b] | Part. | $SO_2$ |
| Hudson Valley | 161 | Albany[c] | | | | | | |
| | | 1972 Operations | 303 | 366 | 6 | 8 | - | - |
| | | Switch Units 1-4 | 494 | 597 | 771 | 932 | - | - |
| | | Danskammer[c] | | | | | | |
| | | 1972 Operations | 784 | 910 | 26 | 30 | - | - |
| | | Switch Units 1-4 | 2117 | 2445 | 472 | 545 | - | - |
| New Jersey, New York, Connecticut | 43 | 74th Street[d] | | | | | | |
| | | 1972 Operations | 4 | 5 | < 1 | < 1 | 2 | < 1 |
| | | Waterside[d] | | | | | | |
| | | 1972 Operations | 9 | 28 | < 1 | 3 | 1 | < 1 |
| | | Arthur Kill | | | | | | |
| | | 1972 Operations | 15 | 17 | 2 | 2 | < 1 | < 1 |
| | | Switch Unit 30 | 82 | 109 | 9 | 12 | < 1 | < 1 |
| | | Astoria[d] | | | | | | |
| | | 1972 Operations | 43 | 60 | 5 | 8 | 3 | < 1 |
| | | Switch Units 10, 20, 30, 40 | 408 | 499 | 22 | 26 | 34 | 3 |
| | | Ravenswood[d] | | | | | | |
| | | 1972 Operations | 18 | 29 | 2 | 3 | < 1 | < 1 |
| | | Switch Units 30N, 30S | 73 | 99 | 3 | 4 | 10 | 1 |

TABLE C-3
(cont)

| AQCR Name | AQCR No. | Plant/Conversion | Maximum 24-hr Concentration ($\mu g/m^3$) Part. Nominal Load[a] | Part. Max Load[b] | $SO_2$ Nominal Load[a] | $SO_2$ Max Load[b] | Max. Annual Conc. ($\mu g/m^3$) Part. | $SO_2$ |
|---|---|---|---|---|---|---|---|---|
| New Jersey, New York, Connecticut | 43 | Barrett[e] | | | | | | |
| | | 1972 Operations | 33 | 49 | 2 | 3 | 3 | < 1 |
| | | Switch Unit 10 | 89 | 127 | 42 | 60 | 8 | 4 |
| | | Far Rockaway[e] | | | | | | |
| | | 1972 Operations | 12 | 21 | 1 | 1 | 1 | < 1 |
| | | Switch Unit 40 | 69 | 79 | 31 | 35 | 6 | 3 |
| | | Port Jefferson | | | | | | |
| | | 1972 Operations | 124 | 129 | 3 | 3 | 8 | < 1 |
| | | Switch Units 30, 40 | 171 | 176 | 49 | 49 | 11 | 3 |
| | | Bowline[c,f] | | | | | | |
| | | 1972 Operations | 670 | 953 | 91 | 129 | - | - |
| | | Lovett[c,f] | | | | | | |
| | | 1972 Operations | 860 | 1454 | 62 | 104 | - | - |
| | | Switch Units 4, 5 | 5824 | 5981 | 1247 | 1230 | - | - |

TABLE C-3

FOOTNOTES

a Nominal Load Case - This presents maximum concentrations calculated by the model based upon average monthly emission rates.

b Maximum Load Case - This case was calculated assuming the plant to be operating at 95% of rated capacity. Since the maximum load case also involves a greater plume rise, a somewhat higher concentration may actually occur on a different day than that found by using the average monthly emission rates. This contingency was examined by considering in detail the 20 highest concentration days. a 10% safety factor was added to the computed concentration.

c This plant is located in severely restricting valley terrain. The assumptions made in the special model used for this plant are such that an appreciably lower degree of confidence must be assigned to these results.

d Concentrations include the influence of interactions between the 74th Street, Astoria, Waterside, Ravenswood, and Bergen (N. J.) plants.

e Concentrations include the influence of interactions between the Barrett and Far Rockaway plants.

f Concentrations include the influence of interactions between the Bowline and Lovett plants.

TABLE C-4 ESTIMATED MAXIMUM GROUND LEVEL CONCENTRATION OF $SO_2$[a]

| AQCR Name | AQCR No. | Plant | 1972 Coal Use | | 1972 Oil Use | | Max. $SO_2$ Concentration, $\mu g/m^3$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Amount ($10^3$T/yr) | Sulfur (%) | Amount ($10^3$Gal/yr) | Sulfur (%) | 24-hour Nominal Load[b] | 24-hour Maximum Load[c] | Annual |
| Central New York | 158 | Oswego | | | 133,103 | 2.4 | 135 | 155 | 9 |
| Genesee-Finger Lakes | 160 | Greenidge[d] | 467 | 2.0 | 2,341 | 0.2 | 285 | 345 | -- |
| | | Rochester 3 | | | 79,242[e] | 1.9 | 77 | 100 | 5 |
| | | Rochester 7 | 566 | 2.0 | 562 | 0.4 | 84 | 115 | 6 |
| New Jersey, New York, Connecticut | 43 | 59th Street[f] | | | 60,215 | 0.4 | 27 | 33 | 1 |
| | | East River[f,g] | | | 86,663 | 0.3 | 8 | 16 | 1 |
| | | Indian Point[d] | | | 29,723 | 0.3 | 43 | 57 | -- |
| | | Hell Gate[f,h] | | | 144,698 | 0.4 | 39 | 57 | 3 |
| | | Hudson Ave.[f,i] | | | 146,836 | 0.3 | 17 | 34 | 1 |
| | | Glenwood[j] | | | 126,861 | 0.9 | 210 | 315 | 17 |
| | | Northport[k] | | | 424,284 | 2.4 | 98 | 120 | 6 |
| Niagara Frontier | 162 | Huntley | 1,437 | 1.9 | | | 95 | 110 | 6 |
| Southern Tier East | 163 | Gouden | 319 | 2.3 | 503 | 0.2 | 395 | 355 | -- |
| | | Jennison | 170 | 1.0 | | | 430 | 695 | -- |
| Southern Tier West | 164 | Hickling[d] | 331 | 1.6 | | | 2,310 | 2,500 | -- |
| | | Milliken[d] | 743 | 2.1 | 660 | 0.6 | 1,120 | 1,040 | -- |
| | | Dunkirk[d] | 1,256 | 2.6 | | | 485 | 520 | -- |

See Footnotes On Following Page

TABLE C-4 Footnotes

[a] Based on 1972 operations.

[b] Nominal Load Case - This presents maximum concentrations calculated by the model based on <u>average monthly</u> emission rates.

[c] Maximum Load Case - This case was calculated assuming the plant to be operating at 95 percent of rated capacity during selected days of highest concentration found by using the monthly average emission rates. Since the maximum load case involves a greater plume rise, a somewhat higher concentration may actually occur on a different day. To allow for this contingency, a ten percent safety factor was added to the computed concentration.

[d] This plant is located in severely restrictive valley terrain. The assumptions made in the special model used for this plant are such that an appreciably lower degree of confidence must be assigned to these results.

[e] All units converted from coal to oil firing in 1973. Coal consumption for 1972 was converted to oil on a BTU-equivalent basis to model this plant.

[f] Results do not consider the possible interactions between the 59th Street, East River, Hell Gate, and Hudson Avenue plants.

[g] East River Plant also burned $17{,}719 \times 10^6$ cubic feet of gas in 1972.

[h] Hell Gate Plant also burned $3{,}156 \times 10^6$ cubic feet of gas in 1972.

[i] Hudson Avenue Plant also burned $1{,}154 \times 10^6$ cubic feet of gas in 1972.

[j] Glenwood Plant also burned $1{,}062 \times 10^6$ cubic feet of gas in 1972.

[k] Diffusion model used does not adequately treat meteorological factors associated with an air/water interface. Therefore, less reliability can be attached to the results predicted for the Northport Plant.

# APPENDIX D

# POINT SOURCE SUMMARY

TABLE D-1 POINT SOURCE[a] SUMMARY FOR NEW YORK, PARTICULATE[b]

| AQCR Name | AQCR No. | Coal Combustion | | Oil Combustion | | Gas Combustion | |
|---|---|---|---|---|---|---|---|
| | | Emissions (T/yr) | % of N.Y. Total[c] | Emissions (T/yr) | % of N.Y. Total[c] | Emissions (T/yr) | % of N.Y. Total[c] |
| Central New York | 158 | 8743 | 92.2 | 625 | 6.6 | 111 | 1.2 |
| Champlain Valley | 159 | 1517 | 80.5 | 368 | 19.5 | 0 | 0.0 |
| Genesee-Finger Lakes | 160 | 4758 | 94.4 | 232 | 4.6 | 49 | 1.0 |
| Hudson Valley | 161 | 5475 | 86.7 | 786 | 12.4 | 54 | 0.9 |
| New Jersey, New York, Connecticut | 43 | 15743[d] | 77.9 | 4460 | 22.1 | 0 | 0.0 |
| Niagara Frontier | 162 | 29451 | 94.4 | 1705 | 5.5 | 42 | 0.1 |
| Southern Tier East | 163 | 890 | 82.2 | 185 | 17.0 | 8 | 0.7 |
| Southern Tier West | 164 | 1932 | 96.7 | 13 | 0.7 | 52 | 2.6 |

[a] Does not include power plants.

[b] Data from New York State and City Implementation Plans (1970 data).

[c] Total non-power plant fuel combustion emissions.

[d] This is 1970 data. Coal combustion has been reduced to near zero in New York City.

TABLE D-2 POINT SOURCE[a] SUMMARY FOR NEW YORK, $SO_2$[b]

| AQCR Name | AQCR No. | Coal Combustion | | Oil Combustion | | Gas Combustion | |
|---|---|---|---|---|---|---|---|
| | | Emissions (T/yr) | % of N.Y. Total[c] | Emissions (T/yr) | % of N.Y. Total[c] | Emissions (T/yr) | % of N.Y. Total[c] |
| Central New York | 158 | 29,690 | 75.0 | 9,911 | 25.0 | 0 | 0.0 |
| Champlain Valley | 159 | 11,229 | 57.9 | 8,153 | 42.1 | 0 | 0.0 |
| Genesee-Finger Lakes | 160 | 46,555 | 91.7 | 4,214 | 8.3 | 1 | 0.0 |
| Hudson Valley | 161 | 14,955 | 53.4 | 13,030 | 46.6 | 2 | 0.0 |
| New Jersey, New York, Connecticut | 43 | 8,611[d] | 26.5 | 23,832 | 73.5 | 0 | 0.0 |
| Niagara Frontier | 162 | 31,250 | 46.3 | 36,260 | 53.7 | 0 | 0.0 |
| Southern Tier East | 163 | 1,296 | 29.4 | 3,047 | 70.6 | 0 | 0.0 |
| Southern Tier West | 164 | 4,966 | 88.4 | 617 | 11.0 | 34 | 0.6 |

[a] Does not include power plants.

[b] Data from New York State and City Implementation Plans (1970 data).

[c] Total non-power plant fuel combustion emissions.

[d] This is 1970 data. Coal combustion has been reduced to near zero in New York City.

# APPENDIX E

## AREA SOURCE SUMMARY

TABLE E-1 AREA SOURCE SUMMARY FOR NEW YORK, PARTICULATE[a]

| AQCR Name | AQCR No. | Coal Combustion | | Oil Combustion | | Gas Combustion | |
|---|---|---|---|---|---|---|---|
| | | Emissions (T/yr) | % of N.Y. Total[b] | Emissions (T/yr) | % of N.Y. Total[b] | Emissions (T/yr) | % of N.Y. Total[b] |
| Central New York | 158 | 2500 | 51.5 | 1980 | 40.7 | 379 | 7.8 |
| Champlain Valley | 159 | 1311 | 54.3 | 1096 | 45.4 | 7 | 0.3 |
| Genesee-Finger Lakes | 160 | 4682 | 69.6 | 1755 | 26.1 | 292 | 4.3 |
| Hudson Valley | 161 | 4291 | 58.3 | 2891 | 39.3 | 181 | 2.5 |
| New Jersey, New York, Connecticut | 43 | 4128[c] | 6.7 | 54912 | 89.1 | 2567 | 4.2 |
| Niagara Frontier | 162 | 1660 | 48.9 | 1479 | 43.6 | 253 | 7.5 |
| Southern Tier East | 163 | 3234 | 83.6 | 581 | 15.0 | 53 | 1.4 |
| Southern Tier West | 164 | 6286 | 85.7 | 906 | 12.4 | 142 | 1.9 |

[a] Data from New York State and City Implementation Plans(1970 data).

[b] Total area source fuel combustion emissions.

[c] This is 1970 data. Coal combustion has been reduced to near zero in New York City.

TABLE E-2 AREA SOURCE SUMMARY FOR NEW YORK, $SO_2$[a]

| AQCR Name | AQCR No. | Coal Combustion | | Oil Combustion | | Gas Combustion | |
|---|---|---|---|---|---|---|---|
| | | Emissions (T/yr) | % of N.Y. Total[b] | Emissions (T/yr) | % of N.Y. Total[b] | Emissions (T/yr) | % of N.Y. Total[b] |
| Central New York | 158 | 4289 | 18.6 | 18,749 | 81.3 | 10 | 0.0 |
| Champlain Valley | 159 | 2250 | 21.7 | 8,095 | 78.3 | 0 | 0.0 |
| Genesee-Finger Lakes | 160 | 4303 | 21.8 | 15,445 | 72.5 | 9 | 0.0 |
| Hudson Valley | 161 | 10050 | 27.5 | 26,548 | 72.5 | 7 | 0.0 |
| New Jersey, New York, Connecticut | 43 | 9160[c] | 2.9 | 303,778 | 97.0 | 84 | 0.0 |
| Niagara Frontier | 162 | 2116 | 19.7 | 8,611 | 80.2 | 14 | 0.1 |
| Southern Tier East | 163 | 3897 | 32.9 | 7,941 | 67.1 | 4 | 0.0 |
| Southern Tier West | 164 | 8632 | 54.2 | 7,277 | 45.7 | 4 | 0.0 |

[a] Data from New York State and City Implementation Plans (1970 data).

[b] Total area source fuel combustion emissions.

[c] This is 1970 data. Coal combustion has been reduced to near zero in New York City.